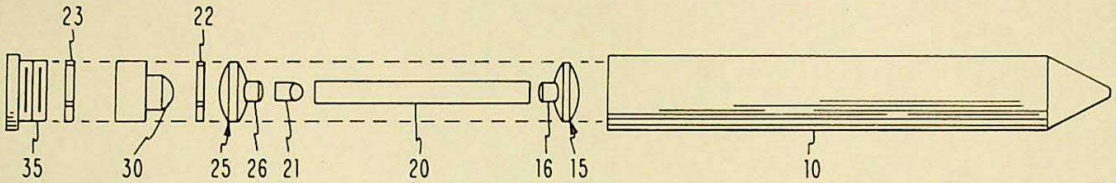
~~350-175~~
IBM Technical Disclosure Bulletin Vol. 16 No. 11 April 1974

~~350-417~~
359/642

OPTICAL READING WAND WITH MULTICONVEX LENS

L. D. Dickson, G. M. Heiling, R. J. Keller and D. G. Nutt



A handheld wand for reflectively reading bar codes, marks, etc., has a coaxial light source and photodetector and inexpensive multiconvex lenses, resulting in good depth of field, high resolution and relatively high-signal levels. The design and manufacturability of the lenses and associated elements facilitate ease of assembly and keep the costs minimal.

Multiconvex lenses 15 and 25 are molded from plastic and have integral pedestal lenses 16 and 26, respectively. Pedestal lens 16 serves as an inner lens and images light from light source 21 onto the reflection plane. The reflected light is collimated by the outer lens of multiconvex lens 15 and focused onto photodetector 30, by the outer lens of multiconvex lens 25. Pedestal lens 26 does not perform any optical function but serves as a mounting and centering pin for source sleeve 20, which is supported thereby at one end and by pedestal lens 16 at the other end.

Multiconvex lenses 15 and 25, source sleeve 20, light source 21, snap rings 22 and 23 all fit into housing 10 and are retained in assembled position by threaded end cap 35. Electrical connections, not shown, are made to light source 21 and photodetector 30.

359/642